Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

1. (amended) A method of initializing a phase-change optical information recording medium, comprising the steps of:

providing a semiconductor laser device;

providing an optical system including said semiconductor laser device configured to be utilized for initializing said phase-change optical information recording medium; and

irradiating at least a part of said phase-change optical information recording medium by means of light beams emitted from said semiconductor laser device;

wherein,

in the spatial distribution of the semiconductor laser power focused on said recording medium in the direction perpendicular to guide tracks, said semiconductor laser device has an average laser power in a first end region with a first predetermined width, and a second end region with a second predetermined width, of the width at half maximum of the spatial distribution, smaller than an average laser power in the center region of the full width at half maximum of the spatial distribution.

2. (original) The method of initializing a phase-change optical information recording medium according to claim 1, wherein

said first predetermined width is at 0% to 10% of the width at half maximum of the spatial distribution and said second predetermined width is at 90% to 100% of the width at half

maximum of the spatial distribution.

3. (amended) The method of initializing a phase-change optical information recording medium according to claim 1, wherein

said step of providing said semiconductor laser device includes polishing edge surfaces of at least one of an active layer and a reflective layer of said semiconductor laser device, substantially perpendicular to the direction of the laser emission, such that [an] the average [of the] laser power in at least one of the end regions of the laser power distribution at 0% to 10% and 90% to 100% of the width at half maximum of the spatial distribution is smaller than [an] the average [of] laser power in the center region of the full width at half maximum of the spatial distribution.

4. (amended) The method of initializing a phase-change optical information recording medium according to claim 1, further comprising the step of:

providing at least one optical device in said optical system, configured to attenuate the light beams emitted from said semiconductor laser device such that [an] the average [of the] laser power in at least one of the end regions of the laser power distribution ranging at 0% to 10% and 90% to 100% of the width at half maximum of the spatial distribution is smaller than [an] the average [of] laser power in the center region of the full width at half maximum of the spatial distribution.

5. (original) The method of initializing a phase-change optical information recording medium according to claim 4, wherein

said optical device is an optical filter.

6. (amended) The method of initializing a phase-change optical information recording medium according to claim 1, wherein

said semiconductor laser device is cured by energizing for at least about six hours with at least about 80% of a maximum allowable electric power prior to said initializing said recording medium such that [an] the average [of the] laser power in at least one of the end regions of the laser power distribution at 0% to 10% and 90% to 100% of the width at half maximum of the spatial distribution is obtained to be smaller than [an] the average [of] laser power in the center region of the full width at half maximum of the spatial distribution.

7. (original) The method of initializing a phase-change optical information recording medium according to claim 1, wherein

a distance of the laser device displacement perpendicular to the guide tracks per disk rotation is larger than one half of, and smaller than, the width at half maximum of the spatial laser power distribution of said light beams on said recording medium.

8. (original) The method of initializing a phase-change optical information recording medium according to claim 7, wherein

said semiconductor laser device has laser emissions having a width at half maximum of at least 80 microns of the spatial power distribution on said recording medium in the direction perpendicular to guide tracks.

9. (original) A method of initializing a phase-change optical information recording medium comprising the steps of:

directing an energy beam at a phase-change optical information recording medium;

causing relative motion between the beam and the medium;

said relative motion causing the beam to irradiate successive bands of the medium that partly overlap; and

said beam having a power distribution and said overlap being to a degree causing the irradiated areas of the medium to receive substantially the same cumulative energy from the beam despite said overlap.

10. (original) A method as in claim 9 in which said energy beam is a laser beam generated at a laser device.

11. (original) A method as in claim 10 including the step of polishing the laser device to achieve a laser beam power distribution configured to achieve said substantially same cumulative amount of energy despite said overlap.

12. (original) A method as in claim 10 including the step of filtering the laser beam prior to its reaching the medium to achieve a laser beam power distribution configured to achieve said substantially same cumulative amount of energy despite said overlap.

13. (original) A method as in claim 10 including the step of curing the laser device prior to initializing the medium to alter the power distribution of the laser beam to a distribution

achieving said substantially same cumulative amount of energy despite said overlap.

14. (amended) An apparatus for initializing a phase-change optical information recording medium, comprising:

a semiconductor laser device configured to irradiate the phase-change optical information recording medium with a light beam to initialize the phase-change optical information recording medium;

wherein in the spatial distribution of the semiconductor laser power focused on said recording medium in the direction perpendicular to guide tracks, said semiconductor laser device has an average laser power in a first end region with a first predetermined width, and a second end region with a second predetermined width, of the width at half maximum of the spatial distribution, smaller than an average laser power in the center region of the full width at half maximum of the spatial distribution; and

wherein the semiconductor laser comprises at least one of an active layer and a reflection layer, and wherein a surface of the at least one of an active layer and an reflection layer perpendicular to an emitting surface of the semiconductor laser is polished.

15. (previously presented) The apparatus according to claim 14, wherein the first predetermined width is at 0% to 10% of the width at half maximum of the spatial distribution and the second predetermined width is at 90% to 100% of the width at half maximum of the spatial distribution.

Claim 16 (canceled).

17. (amended) A phase change optical information recording medium initialized by a semiconductor laser device configured to irradiate the phase-change optical information recording medium with a light beam to initialize the medium;

wherein said medium has guide tracks and said light beam, where incident on the medium has, in a direction perpendicular to said guide tracks, a center region, a first end region of a first predetermined width, a second end region of a second predetermined width, and a spatial distribution of laser power at the recording medium in said direction;

wherein said light beam has an average laser power in the first end region and in the second end region of the width at half maximum of the spatial distribution, smaller than an average laser power in the center region of the full width at half maximum of the spatial distribution; and

wherein the semiconductor laser comprises at least one of an active layer and a reflection layer, and wherein a surface of the at least one of an active layer and an reflection layer perpendicular to an emitting surface of the semiconductor laser is polished.

18. (previously presented) The medium according to claim 17, wherein the first predetermined width is at 0% to 10% of the width at half maximum of the spatial distribution and the second predetermined width is at 90% to 100% of the width at half maximum of the spatial distribution.

19. (amended) A phase change optical information recording medium having guide tracks and initialized by irradiation with a said light beam that has, in a direction perpendicular to

said guide tracks when initializing the medium, a center region, a first end region of a first predetermined width, a second end region of a second predetermined width, and a spatial distribution of laser power at the recording medium in said direction;

wherein said light beam has an average laser power in the first end region and in the second end region of the width at half maximum of the spatial distribution, smaller than an average laser power in the center region of the full width at half maximum of the spatial distribution; and

wherein the semiconductor laser comprises at least one of an active layer and a reflection layer, and wherein a surface of the at least one of an active layer and an reflection layer perpendicular to an emitting surface of the semiconductor laser is polished.

20. (previously presented) The medium according to claim 19, wherein the first predetermined width is at 0% to 10% of the width at half maximum of the spatial distribution and the second predetermined width is at 90% to 100% of the width at half maximum of the spatial distribution.